

REVIEW PAPER
ON
AGRICULTURE IN AFGHANISTAN
THE GLORIOUS PAST AND URGENT FUTURE
BY
ZARDASHT



DEPARTMENT OF HORTICULTURE
FACULTY OF CROP PRODUCTION SCIENCES,
NWFP AGRICULTURAL UNIVERSITY,
PESHAWAR, PAKISTAN,

FEBRUARY, 2000



REVIEW PAPER
ON
AGRICULTURE IN AFGHANISTAN
THE GLORIOUS PAST AND UNGERTAIN FUTURE
BY
ZARDASHT



**DEPARTMENT OF HORTICULTURE
FACULTY OF CROP PRODUCTION SCIENCES,
NWFP AGRICULTURAL UNIVERSITY,
PESHAWAR, PAKISTAN,**

FEBRUARY, 2000

REVIEW PAPER
ON
AGRICULTURE IN AFGHANISTAN
THE GLORIOUS PAST AND UNCERTAIN FUTURE
BY
ZARDASHT

*A review paper submitted to NWFP Agricultural University,
Peshawar in partial fulfillment of the requirements for the Degree of*

**BACHELOR OF SCIENCE (HONS) IN AGRICULTURE
(HORTICULTURE)**

Approved by:

1. Abdur Rab Advisor
Dr. Abdur Rab,
Department of Horticulture,
N.W.F.P Agricultural University,
Peshawar.

2. Wazir Muhammad Chairman
Prof. Wazir Muhammad,
Chairman,
Department of Horticulture,
N.W.F.P. Agricultural University,
Peshawar.

DEPARTMENT OF HORTICULTURE
FACULTY OF CROP PRODUCTION SCIENCES,
NWFP AGRICULTURAL UNIVERSITY,
PESHAWAR, PAKISTAN,

FEBRUARY, 2000



In the name of Allah, Most Gracious, Most Merciful.

Praise to be Allah, The Cherisher and Sustainers of the worlds;

Most Gracious, Most Merciful;

Master of the Day of Judgement.

Thee do we worship, And thine aid we seek.

Show us the straight way;

The way of those on whom thou hast bestowed Thy Grace,

Thou whose (portion) is not wrath,

And who go not astray.

(Sura -e-Fatiha)

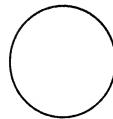


The Image Maker

Dedication

**DEDICATED TO THE
LAND OF GLORY
AFGHANISTAN**

Zardash Shams



CONTENTS

	TITLE	PAGE NO.
	ACKNOWLEDGEMENTS.....	i
	MAP OF AFGHANISTAN.....	ii
I.	INTRODUCTION.....	1
II.	AGRO – ECOLOGICAL ZONES OF AFGHANISTAN	4
III.	AFGHANISTAN'S AGRICULTURE BEFORE WAR	13
IV.	EFFECT OF WAR ON AGRICULTURE	22
V.	MAJOR CONSTRAINTS IN AGRICULTURE.....	26
VI.	FUTURE STRATEGIES.....	28
VII.	CONCLUSIONS	29
VIII.	LITERATURE CITED	30

ACKNOWLEDGMENTS

Praise be to Allah, the Cherisher and sustainer of the worlds. I express my deepest sense of gratitude to Almighty Allah, who enabled me to complete this research work.

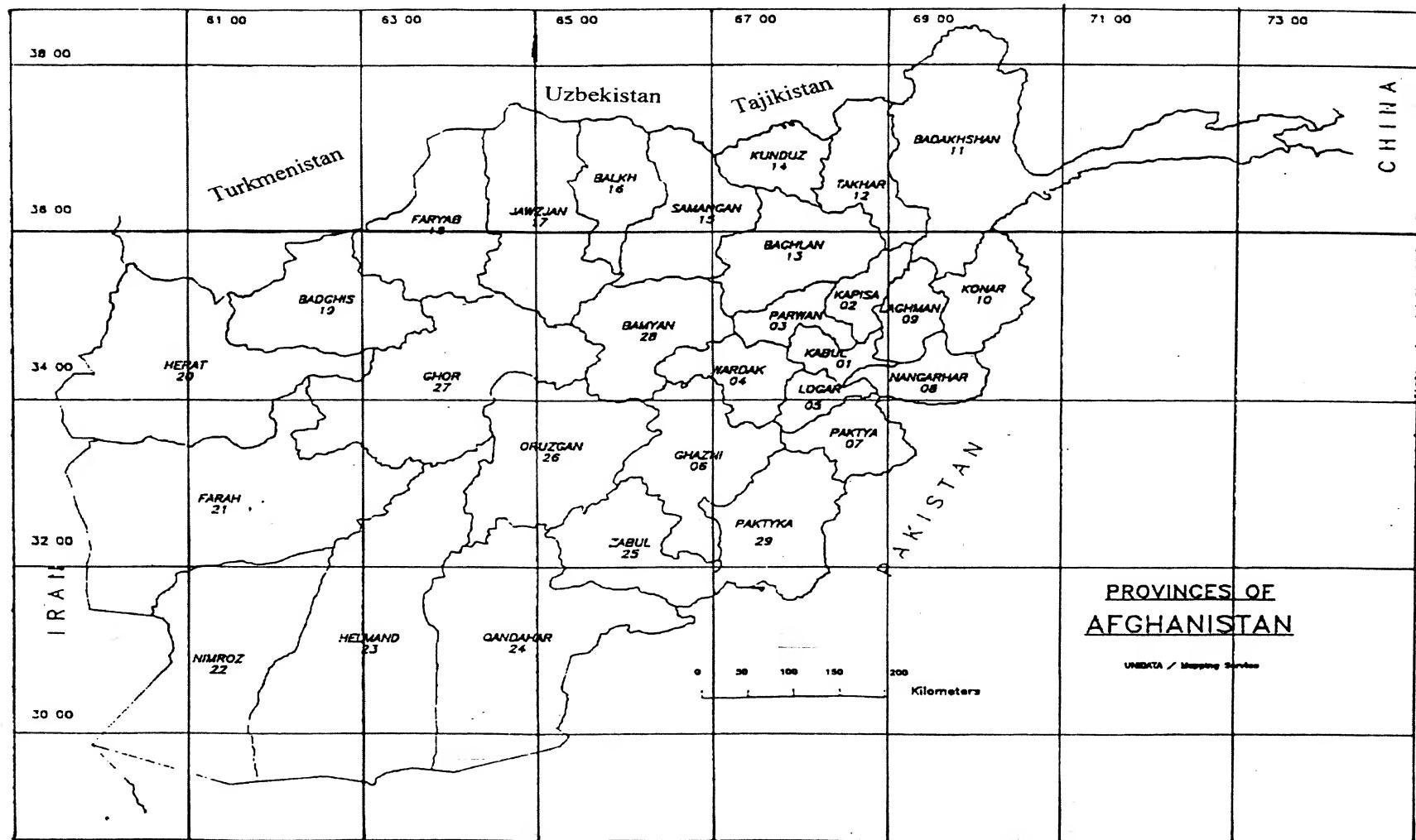
I am thankful to Prof. Wazir Muhammad, Chairman, Department of Horticulture, NWFP, Agricultural University, Peshawar, for providing every possible facility and moral support for the completion of this work.

I would like to express my sincere gratitude to my respectable advisor Dr. Abdur Rab, Department of Horticulture, NWFP, Agricultural University, Peshawar, for his kind guidance, encouragement and keen interest during the course of study.

Special Thanks to ACBAR (Agency Coordinating Body for Afghan Relief) and Swedish committee for Afghanistan for their kind assistance during my research,

Zardasht Shams

MAP OF AFGHANISTAN



INTRODUCTION

Background

God has blessed Afghanistan with a diverse type of land ranging from the harsh and uncompromising mountains to fertile and productive plains, with beautiful river valleys. This natural setup makes the country suitable for agriculture.

About 5% of the land area, which is the irrigated valley floors, produces 85% of all agricultural output. In 1978, before beginning of the war, the country was largely self-sufficient in food and was a significant exporter of agricultural products.

Afghanistan is a country with an agrarian economy. About 85% of the population is associated with agriculture. For the last twenty years it has been torn apart by war. During this period one third of the population either fled the country or were internally displaced. This resulted many farming areas depopulated and most of the trained personals dispersed.

As mentioned above, before war Afghanistan was one of the key exporters of agricultural commodities such as fruits, silk, cotton and animal products. Export markets included Pakistan, India, Iran, some European, Middle East and Central Asian countries. These exports greatly contributed to Afghan economy and were major source of earning foreign exchange. During the war, agriculture has suffered more than any other sector. The country, once the major exporter of many agricultural products has became a food deficient region.

Some brief statistical data on Afghanistan:

1. **Geography:**

Altitude: Very wide range, from 200m (at Turkmenistan border) to 7485m (at Nowshak mountains, highest point of Afghanistan).

Capital: Kabul.

Planning regions: For administrative purpose Afghanistan is divided into six planning regions:

1. South east - Paktia, Ningarhar, Laghman, Kunar.
2. East central - Kabul, Bamyan, Parwan, Logar, Wardak, Kapisa, Ghazni and Zabul.
3. North east - Baghlan, Takhar, Kunduz, Badakhshan.
4. South west - Paktika, Helmand, Qandahar, Nimruz, Uruzgan.
5. North west - Herat, Ghor, Badghis, Farah.
6. North - Faryab, Balkh, Samangan, Jowzjan.

with total of 29 provinces.

Bordering countries: China, Iran, Pakistan, Tajikistan, Turkmenistan and Uzbekistan.

2. **Population:** Estimated population

13.05 million (1979 Govt. Census)

17.64 million (1990 Unidata pop project estimate)

18.20 million (1996 unofficial UN estimate).

Refugees: 1.4 million in Iran, and 1.2 million in Pakistan (1999).

3. **Land use:**

Land area by form of land use (as at 1972)

	Area (ha)	%	Area (ha)	%
Irrigated land				
orchards	80200	2.4		
Cereal crops x 2/year	451400	13.7		
x 1/year	733700	22.3		
intermittently cropped	2023000	61.5		
Sub total irrigated land		100.0	32883	5.12
Rainfed crop land (total area, 20-25% only cropped each year)			4835700	7.52
Forest area			1987000	3.09
Range land and other			54128500	84.26
Total land area			64239500	100.00

Agro-ecological zones of Afghanistan

Numerous attempts have been made to divide Afghanistan into geographical/Agro-ecological zones. Some are listed below:

1. Ministry of planning divides Afghanistan into seven agricultural zones.
2. Cressey (1960) distinguishes, seven geographic regions none of them with precise limits.
3. Dupree (1973/1980): It is the most suitable division, which divides Afghanistan into eleven Agro-ecological zones.

The land resources of Afghanistan are briefly described on the basis of Dupree's eleven agro-ecological zones.

Dupree proposes eleven geographical/agro-ecological zones:

1. The wakhan corridor.
2. Badakhshan.
3. Central mountains.
4. Eastern mountains.
5. Southern mountains and foothills.
6. Northern mountains and foothills.
7. Turkestan plains.
8. Herat-Farah lowlands.
9. Helmand valley-sistine basin.
10. Western stony deserts.

11. South western sandy deserts.

The first six zones (Wakhan, Badakhshan, Central-mountains, Eastern mountains, Northern Mountains and foothills; southern mountain and foothills) relates to the Hindu kush mountain system, young rugged ranges with sharp peaks and deep valleys.

The remaining five zones (Turkestan plains, Herat-Farah lowlands, Helmand valley-sistan Basin, Western stony deserts and south western sandy deserts) embrace the deserts and plains which surround the mountains to the north, west, south and south west.

Agro-ecological zones:

Zone 1. Wakhan corridor and the Pamir knot (1.7%)

Location/area: Wakhan district of Badakhshan province, in the extreme North-East, separating Pakistan from Tajikistan.

Area (approx): 11100 km²

Altitudes: Range from 1800 m (Panj river) to 7485m (Nowshak mountain, highest point of Afghanistan).

Climate: Range of mean annual precipitation: 100-200mm in the North-East to 600-800mm in the western part above 5000m (altitude).

Land use: According to FAO land cover statistics irrigated agriculture occupied about 4770ha (0.4% of the total area) in 1972, no rainfed agriculture is reported.

General remarks: The Anglo-Russian boundary commission of 1895-96 politically forced this zone on Amir Abdur Rahman Khan so that at no point would British India and Tzarist Russia touch.

Zone 2. Badakhshan (6.4%)

Comprises Badakhshan province except, Wakhan district) and eastern and southern districts of Takhar province.

Area (Approx): 41200 km²

Altitude Range: From 400m (Panj/Amu river to 6843m (Tirgaran mountain) in the south.

Climate: Range of mean annual precipitation: from 300-400mm below 1000 m (northwest), to 800-1000+above 4000m.

Land use: According to FAO 1972 land cover statistics total agricultural area occupied about 792,625 ha (19.2% of the this zone), comprising 5960 ha (0.8%) orchards, 7270 ha (9.1%) irrigated and 714400 ha (90.7%) rainfed land.

Agriculture is the main occupation and includes grain and fruit production.

Zone 3. Central Mountains (19%)

Location: The central mountains, encompass the entire province of Oruzgan; almost entirely Ghor (except northern 1/3 of Chaghcharan district) and Bamyan (except few northern

districts), eastern parts of Herat and Farah, the northern tips of Helmand, Qandahar, northern half of Ghazni, the western half of Wardak and the southern portions of Kunduz and Takhar provinces.

Area: 122400 km²

Climate: Mean annual precipitation: 150-200 mm (in southern river valley) to 600 mm (in western and northern mountains).

Altitudes: 1000-5135 m.

Land use: According to FAO 1972 land cover statistics total Agricultural area occupied around 1418200 ha (11.6% of zone) comprising 11,120 ha (0.8%) orchards, 558,546 ha (39.4%) irrigated land and 848530 ha (59.8%) rainfed land. Opium poppy cultivation (irrigated) occupied around 30000 ha (UNDCP estimate) in 1995.

Zone 4. Eastern Mountains (7.9%)

Location: The Eastern mountains comprise the provinces of Kabul, Kapisa, Kunar, Laghman, Logar, Ningarhar and Parwan and the eastern part of Wardak province.

Area: 50800 km²

Altitudes Range: From approximately 400m - 6435m

Climate: Range of mean annual precipitation: 150-250 mm - 800-

1000mm.

Land use: According to FAO 1972 land cover statistics total Agricultural land occupied about 615900 ha (21.1% of zone) comprising 12780 ha (2.1%) orchards, 452070 ha (73.4%) irrigated and 151060 ha (12.1%) rainfed land. Opium poppy cultivation (irrigated) occupied approximately 15000 to 16000 ha (UNDCP estimate) in Nangarhar province and some 150ha in Kunar province in 1995. But these figures have increased in the last four years.

Zone 5. Southern mountain and foothills (10%)

Location: Comprise the provinces of Paktia, Paktika, the southern part of Ghazni, the south eastern part of Zabul province, the northern part of Qandahar province and Jaghatu district of Wardak province.

Area: (Approx): 64400 km²

Altitude: 1000-4050 m.

Climate: Range of mean annual precipitation. 100-200 mm (below 20000m) and 800-1000 + mm (north west above 3000m).

Land use: According to FAO land cover statistics total agricultural land occupied around 756430 ha (11.7% of the zone) comprising 4280 ha (0.6%) orchards, 522470 ha (69.1%) irrigated and

229680 ha (30.3%) rainfed land. Irrigated opium poppy cultivation occupied around 100-150 ha (UNDCP estimate) in 1995.

Zone 6. Northern Mountains and foothills (14.2%)

Location: Comprise Baghlan province and part of Kunduz, Samangan, Bamyan, Balkh, Jawzjan, Faryab and Badghis.

Area: Approx: 91100 km²

Altitude: Range: 500m - 5125m

Climate: Range of mean annual precipitation: 200-300 mm below 500 m to 600-800 mm above 2500-3000 m.

Land use: According to FAO land cover statistics total Agricultural land occupied around 2577820 ha (28.3% of the zone) comprising 7636 ha (0.3%) orchards, 301390 ha (11.7%) irrigated land and 2268800 ha (88%) rainfed land.

Zone 7: Turkestan plains (8.6%)

The Turkestan plains region comprises the western part of Takhar Province, the major part of Kunduz Province the northern part of Samangan, Balkh, Jawzjan, Faryab, Badghis and Herat.

Area: (Approx) 55100 km²

Altitudes: 200m - 1000m.

Climate: Range of mean annual precipitation: from 100-200 mm in

northern sand deserts to 400-500 mm at border with Badakhshan region.

Land use: According to FAO land cover statistics total agricultural land occupied 1431184 ha (26% of the zone) comprising 16340 ha (1.1%) orchards, 657660 ha (46%) irrigated and 757190 ha (52.9%) rainfed land.

Zone 8. Herat-Farah low lands (11.9%)

Location: The Herat-Farah low lands comprises most of Herat and Farah provinces.

Area: approx.76500 km²

Altitude: From 470m to 2000-2500m.

Climate: Range of mean annual precipitation less than 100 mm to 300-400mm.

Land use: According to FAO land cover statistics total Agricultural area occupied around 371200 ha (4.8% of the zone), comprising 2290 ha (0.6%) orchards, 368,780 ha (99.3%) irrigated and virtually no (<0.1%) rainfed land.

Zone 9. Helmand valley Sistan Basin (7.5%)

The Helmand valley Sistan Basin comprises part of Qandahar, Helmand and Nimroz, provinces.

Area: 48400 km²

Altitudes: 470 to 2500m

Climate: Mean annual precipitation from 100mm - 300mm.

Land use: According to FAO land cover statistics total Agricultural land occupied 410620 ha (8.5% of total). Comprising 22165 ha (5.4%) orchards, 388,160 ha (94.5%) irrigated land some 300 ha (.01%) rainfed land, opium poppy cultivation (irrigated) between 26000 and 27000 ha in 1995.

Zone 10. Western stony deserts (5.7%)

Location: Comprise most part of Nimroz and the western part of Helmand.

Area: 36900 km²

Altitude: 470 m - 1500 m.

Climate: Less than 100 mm - 300 mm.

Land use: According to FAO land cover statistics total Agricultural land occupied 77620 ha (2.1% of the zone). Comprising 140 ha (0.2%) orchards and 76880 ha (99.8%) irrigated land. No rainfed land was recorded.

Zone 11: South Western Sandy Deserts (6.9%)

Location: Comprises most of Qandahar and Southern part of Helmand province.

Area: 44500 km².

Altitude: 600m - 2000m.

Climate: Less than 100-200mm.

• **Land use:** According to FAO land cover statistics total agricultural land occupied 58190 ha (1.3% of the zone). Comprising 52560 ha (90.3%) irrigated land and 5630 ha (9.7%) rainfed land.

AFGHANISTAN'S AGRICULTURE BEFORE WAR

The Afghan people, land and economy were, upto 1978, mainly agricultural with the small amount of industrial development that was largely linked to the processing of agricultural commodities. According to pre-1978 statistics only 7.6 million hectares or 12% of the country land was cultivatable. Of this 1.4 million ha was rainfed and 5.2 million ha was irrigated. Half of area developed for irrigation was annually cultivated because of unreliable water supply. Nevertheless, irrigated land provided the country with 77% of all wheat (the major staple crop), and 85% of all food and industrial crops.

Table 1: AREA AND PRODUCTION OF SOME IMPORTANT CROPS (1978)

S.No.	Crop	Area, 000 ha	Production (000) tons
1.	Wheat	2,345	2652
2.	Maize	480	760
3.	Rice	210	400
4.	Cotton	128	136
5.	Sugarcane	4	64
6.	Vegetables	114	860
7.	Fruits	210	1122
8.	Other crops	485	881

Source: Afghan agriculture in figures published by Central Statistics Office, Ministry of Planning, December, 1978.

The livestock industry was also important. The national flock of ordinary sheep, karakul sheep and goats was an estimated 25 million in 1978, with the pastoralists and nomads moving between the winter grazing in the plains and the high mountain pastures in the Hindu kush. Cattle estimated at 3.6 million were mainly for draught, milk and meat. Camels, horses and donkeys, in all about 2 million, were the main means of transport in the difficult terrain livestock were also a vital buffer against poor harvests when they were sold to buy grains.

Table 2: Livestock numbers 1967-1995 (000)

Livestock class	1967	1981	1991	1995
Cattle	3633	3750	4049	3693
Sheep	21455	18900	18688	22012
Goats	3187	2900	-	8930
Horses	403	400	245	367
Donkeys	1328	1300	1131	1019
Camels	299	265	80	277

The pace of development in Afghanistan's Agriculture upto 1978 had been impressive, evidenced by the decline and elimination of imports of its most important crop, wheat. For the decade upto 1973 annual imports averaged over 115,000 tons. By 1974 it was self-sufficient. This was in parallel with exports of other commodities, which in 1978 were: Cotton, 34000t worth US\$ 55 million, fruits US \$ 106 million hides and skins and other agricultural exports, US \$ 61 million; a total of US \$ 222 million. This was more than twice as much as non-agricultural

exports, estimated at US \$ 92 million in the same year. Meanwhile the percent share of agricultural imports compared to total imports was falling and been 24% in 1975 and 15% in 1978.

Table-3: VALUE OF THE EXPORTS AND IMPORTS OF SELECTED COMMODITIES IN AGRICULTURAL SECTOR (1974-78).
(Million U.S. \$)

Year	Exports			Imports		
	Exports of Agricultural Commodities	Total Exports from Afghanistan	% share of Agricultural exports to total exports	Imports of Agricultural commodities	Total imports into Afghanistan	% share of agricultural imports to total imports
1974-75	170.71	230.54	74.05	61.25	251.28	20.96
1975-76	151.69	223.36	67.91	83.02	350.72	23.67
1976-77	214.36	298.81	71.74	54.38	335.74	16.20
1977-78	221.61	313.37	70.72	75.18	491.28	15.30

HORTICULTURE:

The range of climates inside Afghanistan, together with the hard winters and low relative humidity, which reduces pest and disease problems, give the country's horticultural sector (fruit, nuts and vegetables) enormous potential for development. Afghanistan grows a rich variety of orchard crops; citrus, olive, apple, pear, apricot, peach, plum, cherry, almond, walnut, pomegranate, mulberry and grapes. Historically, the export of dried fruits was the major source of hard currency. Prior to 1978 fruit production accounted for 37% of Afghanistan foreign exchange earnings,

70% of these earnings were from the export of raisins. According to government statistics 1977, the country has exported 247000 tons of fruits, which has earned about 120 million US\$.

Table-4: FRUIT EXPORTS IN 1974-75

Fruits	Quantity (Tons)	Importing Countries
Grapes	50,000	India and Pakistan.
Pomegranates	15,000	India, Pakistan & Former USSR
Apple	5,000	Pakistan
Oranges	2,800	Iran
Melons	35,000	Pakistan
Apricot	15,000	Pakistan
Raisins	40,000	India, Pakistan, China, USSR, EEC
Almond	5,000	India, Pakistan, China, USSR, EEC
Pistachios	1,200	Lebanon, India
Walnut	5,000	USSR, Czechoslovakia, Lebanon
Apricot Kernels & Nuts	1,000	Sweden, India, Pakistan, USSR
Total:	161500	Worth 96 million US \$

In vegetable sector before war, several provinces of Afghanistan were famous for supplying summer and winter vegetables to local and export markets. Due to high perishability vegetables were exported only to Iran (from Herat) and Pakistan. But crops such as potatoes, onions, cucumbers, okra and tomatoes had good demand

in India and Central Asian Countries. Some horticultural crops are discussed below:

1. **Fresh fruits:**

(i) **Grapes:** Afghanistan had annually exported between 30,000 and 60,000 tons of grapes in 1973-1976. Grapes were a principle export, accounted for 60% of the value of Afghan fresh fruit exports.

In Qandahar they were grown by 61% of farmers with an average area of 2.2 ha and average production of 3815 kg/ha (of raisin). In Parwan 43% of farmers had an average area of 0.84 ha with yield of 7105 kg/ha. In Ghazni 30% of farmers had an average area of 0.88 ha and average yield of 3675 kg/ha. Other provinces producing grapes were Zabul (28% of farmers), Jowzjan (18%), Herat (16%), Kapisa (7%), Paktia (4%), Faryab (6%) and Helmand (5%), on average area of 1-2 ha.

Neighboring Indian and Pakistani markets accounted for about all of the exports (34% and 65% respectively), lack of storage facilities and proper transportation did not enabled fresh produce to reach more distant markets. The dominated grape variety was Kishmishi.

(ii) **Pomegranates:**

The second most valuable Afghan fresh fruit export. The commodity has one of the highest growth of sales among Afghanistan fresh fruits exports. Afghanistan used to export exported about 13000 tons annually; principally to India, Pakistan and former USSR. For the period between - 1972-1975 these

markets accounted for 60%, 17% and 16% respectively of Afghan pomegranate exports.

(iii) **Apple:**

In early 70's Pakistan was the only market importing annually about 5,000 tons or almost 100% of Afghanistan apples. Pakistan import prices were sufficiently attractive.

(iv) **Oranges:**

Approximately 2800 tons of oranges were produced annually, with most being exported, to Iran and Pakistan.

(v) **Melons:**

Afghanistan exported about 35,000 tons of melons annually, 99% of which were exported to Pakistan.

(vi) **Apricots:**

Annual Afghan exports of fresh apricots averaged about 1500 tons. All were exported to Pakistan.

(vii) **Olive:**

Large irrigated olive groves were established on a state farm in Ningarhar (Jalalabad) in 1963 using Olea cuspidata rootstock (from Khost and Kunar) and Olea europea scions of the varieties (from USSR) Gamlic, Azerbahayee, Chinlic, Civelan Hamady and Chimvalic. The first two were planted for oil, the rest for conserves. Oil percentage was 18-25%. Yield per tree was 35-200

kg if fertilized. Some of available data of olive production is given below:

Table 5: Olive production in Ningarhar province from 1971-1990.

Year	Area Planted (Hectares)	Production (Tones)
1971	883.9	4.7
1972	1,132.6	80.0
1973	1,135.3	80.0
1974	1,135.3	318.0
1975	1,288.1	680.0
1982 (expected)	3,726.0	3726
1990 (expected)	3,726.0	15000

2. Dried Fruits:

(i) Raisins:

Afghanistan contributed about 15% of world raisin exports approx. 40,000 tons out of 260,000 tons. It was among the major world exporters (Greece, Turkey, USA, Iran, Australia and Afghanistan). Afghan exports included red, green and black raisins. Green raisins (30% of raisin exports) were exported principally to India, USSR, and Pakistan, while red raisin (56% of raisin exports) to EEC, USSR, China, India and Pakistan.

The government had initiated plans to establish raisin industry for world market competition. For this purpose a raisin institute was created in

1975, with the objectives of:

1. acting as a trade organization, and
2. adopt and implement grades and standards with the ultimate aim of promoting and expanding exports.

Following Raisin processing plants were functioning:

1. Bagram Raisin Company (Charakar).
2. Afghan Processing Company (Qandahar).
3. Wahid Raisin Company (Qandahar).
4. Samoan Company (Kabul).
5. Pashtoon Fruit Company (Kabul).

(ii) Dried apricots:

Afghanistan accounted for about 20% of world dried apricot exports with neighboring Iran being the leading world exporter. Chakarpara is the principal Afghan export variety. It has a light yellow color and is allowed to dry on the tree. The major markets were Pakistan, India and former USSR.

3. Nuts:

(i) Almond:

It was annually exported about 5,000 tons representing about 8% of world exports. Leading world almond exporters are USA and Spain. Major importing countries are Germany, France, Japan, and U.K. but Afghanistan export markets were India, Pakistan and former USSR.

(ii) **Pistachios:**

As compared to Turkey and Iran, Afghanistan had a small share of world pistachios exports. It exported about 12,00 tons annually, most of which to Lebanon and India.

(iii) **Walnut:**

World walnut exports averaged about 55,000 tons a year between 1962-1971 and then rose to 71,000 tons in 1973 and 1974. Afghanistan exported about 5,000 tons annually about 7% of world exports. Leading world exporters are USA, China, France and Italy while leading importers are, Germany, UK and Canada. 70% of the produce was exported to former USSR, 6% to Czechoslovakia and 2% to Lebanon.

(iv) **Apricot nuts and Kernels:**

1,000 tons of Apricot nuts and kernels were annually exported to principal markets being Sweden, India, Pakistan, USSR and Lebanon. It had stiff competition with China, Turkey, Australia, South Africa, and Spain in the major European markets.

Effects of war on Agriculture:

The 10 years of foreign invasion followed by the continuous civil war have disrupted virtually all communities with a substantial loss of human, personal and community capital and infrastructure. Farmers who are willing and aware of improved technology lack the capital and labour resources to implement strategies to raise productivity.

Landmines have left some scarce resources of farm land unusable, fertilizer production and agricultural product processing has ceased. Another significant loss has been the large numbers of educated people, including many experienced agricultural professionals. 20 years long war has affected agriculture of the country both directly and indirectly by destroying irrigation system, bombing of villages, burning of crops killing of livestock and migration of farmers to other safe places. Agriculture was severely affected in 1985 and 1986 when war was at peak.

**Table 6: The direct effects of war - national averages.
(Percentage of farmers reporting)**

	1978	1980	1985	1986	1987
Destruction of irrigation system	0	13	24	20	12
Burning of crop	0	4	11	8	4
Bombing of village	0	23	53	38	22
Destruction of grain store	0	7	13	10	3
Livestock shot	0	9	23	13	6
Livestock killed by mines	0	2	6	5	2
Average number of livestock shot/farmer	1	3	4	2	2
Average number of livestock mined/farmer	0	2	2	1	2

Some major constraints to agriculture such as the non-availability of seeds, lack of pest control, scarcity of farm power, non-availability of water and lack of capital caused great reduction in crop productivity. The following table shows reduction in crop yield due to ceaseless war.

Table 7: Crop production data (1978, 1987, 1991).

Crop	1978 kg/ha	1987 kg/ha	1991 kg/ha
Wheat (irrigated)	2415	1785	1820
Maize	1925	1400	1820
Rice	2800	2275	2240
Cotton	2030	1435	1050
Potatoes	17325	12460	9975
Melon	24185	15225	2695
Grape	4270	3360	3405.5

Effects of war on Horticulture Sector:

The horticultural sector in Afghanistan plays an important role in the economy, both in the provision of cash crops for local (in-country) consumption, and as a potential source of export earnings. The importance of this is clearly demonstrated by the pre-war statistics which shows horticultural produce earning approximately 37% of export returns with dried and fresh fruits. Naturally the effects of war have severely reduced the production base of this sector, through direct destruction of the perennial crops themselves, destruction of the irrigation structures which supported the culture of intensive horticulture and the massive population disturbances. As a result of conflict, production of different horticultural crops has fallen with varying percentages.

The following table shows reduction in yield of citrus in Ningrahar province with the beginning of war.

Table 8: Area and production of citrus in Ningarhar province

Year	Area (hac)	Yield (tones)
1974	3242	-
1975	1004.6	3816.7
1976	1059.5	3466.4
1977	1117.2	5815.7
1978	1145.4	6500.0
1979	1280.0	7600.0
1980	1216.0	3824.4
1981	1259.0	3104.0
1982	1402.0	3690.0

Livestock:

Livestock were a particular target of the Afghan army and the Soviets, and animal were either shot or killed by exploding mines. In 1985, 23% of farmers who stayed in Afghanistan had livestock shot, while the figure was 31% for those who left in 1987 (migrated to Pakistan or Iran).

Large animal number were lost during the years of war, both through direct effects of war and because farmers were forced to sell their livestock for slaughter.

Reduction in livestock number (especially oxen) directly affected crop cultivation. Because oxen are the back bone of farm power in Afghanistan.

TABLE 9: Livestock ownership, average number per farm family

	1978	1980	1985	1986	1987	Percent Decrease
Av.No. of horses	2.17	1.26	1.55	1.19	1.19	44.94
Av.No. of donkeys & mules	1.74	1.71	1.61	1.62	1.62	6.46
Av.No. of karakul sheep	27.64	24.09	17.43	12.27	8.41	69.57
Av.No. of other sheep & goats	42.81	30.92	21.23	16.81	14.33	66.53
Av. No.of cattle	6.25	5.51	4.27	3.66	3.27	47.65

Major constraints in Agriculture:

1. Destruction of and damages caused to the irrigation facilities and lack of proper maintenance.
2. Displacement of farm families within and outside Afghanistan.
3. Shortage of farm power (including farm animal and tractor).
4. Lack of other agricultural inputs such as fertilizers, credit and improved seeds.
5. Scarcity of pesticides and insecticides.
6. Problems of transportation and marketing.

7. Lack of storage facilities.
8. Non-availability of fuel for farm machinery.
9. Inadequate or even no extension services.
10. Shortage of farm labor/manpower especially during tilling and harvesting seasons.

FUTURE STRATEGIES

1. Rebuilding the infrastructure:

- i. Farm to market Roads.
- ii. Irrigation system.
- iii. Agricultural Services (extension services, credit facilities).

2. Growing of Agricultural crops on priority basis:

Emphasis should be given on:

- i. Cereals and vegetables for (in-country consumption) domestic need and
- ii. Fruits including Apple, Grapes, melons, apricots and dry fruits for international trade.

3. Rebuilding livestock industry: For diary products, meat, skins, hides and wool. Afghanistan is producing a huge amount of hides, skins and wool but has no facilities for the processing of these products. Support for the development of relevant industries will benefit the country's economy.

4. Water conservation: Construction of small-scale water reservoir will help in the irrigation of rain fed areas, which ahs significant role in afghan agriculture.

5. Marketing of Afghan horticultural produce: Currently there is very little internal and export marketing of horticultural products. Opportunities should be identified and strategies developed for the marketing of these fresh and processed products.

CONCLUSIONS

1. War has severely disrupted the agricultural sector of the country.
2. Agricultural production in terms of total production as well as yield/ha has decreased as a result of ceaseless war.
3. The country once self sufficient in, and exporter of various horticultural produce is now in serious demands of food items, particularly cereals.
4. Measures are required to rebuild the agricultural sector of Afghanistan.

LITERATURE CITED

Afghanistan Government. 1978. Afghan Agriculture in figures, Central Statistics Office, Ministry of Planning, Kabul.

David, W.D. 1997. Integrated crop and food production in Afghanistan. Orchard and Vineyard Integrated Production and protection Consultancy. (FAO) AfG/94/002.

FAO. 1997. Afghanistan Agricultural Strategy.

FAO. 1997. Integrated crop and food Production in Afghanistan. An account of the achievements of the AFG/94/002 Programme 1995-97 and opportunities for 1997-1999.

Sherzad, B.M. 1987. Da tal shno panro mevea, Da mevo Aw sabo samoon Aw satana (Pashto).

Swedish committee for Afghanistan 1988/1989. GENERAL SURVEY, The Agricultural Survey of Afghanistan.

Swedish Committee for Afghanistan, (1988). FIRST REPORT, The Agricultural Survey of Afghanistan.

Swedish committee for Afghanistan. 1989. CROPS AND YIELDS, third report, the Agricultural Survey of Afghanistan.

Swedish Committee for Afghanistan. 1990. GENERAL SURVEY, The Agricultural Survey of Afghanistan.

Swedish committee for Afghanistan. 1992. 1991 Survey the Agricultural Survey of Afghanistan.

Swedish committee for Afghanistan. 1993. Agricultural Survey of Afghanistan, 1992-93.

UNIDATA. 1991. Qanadahar Province, a socio-economic profile.

UNIDATA. 1992. Badakhshan Province, a socio-economic Profile.

UNIDATA. 1992. Balkh Province, a socio-economic profile.

UNIDATA. 1992. Ghazni Province, a socio-economic Profile.

Wazir, F.K. 1987. Present Status and Future scope of fruit culture in NWFP.

World Bank. 1976. Horticultural sub-sector survey of Afghanistan.